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THE

O[illegible]TORY.

BY LEMUEL SAWYER.

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[illegible]BSERVATORY.

IT wa[illegible]te saying of the greatest of moderns, that it was but a step from the sublime to the ridiculous. The truth of the remark was never more fully verified than in relation to the present subject of discussion. At the first congress which convened under the administration of John Quincy Adams, among other matters contained in his message was the recommendation of a national observatory at the seat of government. Having made use of the ill stared words, light houses of the skies, he furnished a copious fund of ridicule and derision to his mischievous and witty opponents of which they did not fail to be most unmercifully lavish, and thus by christening this splendid offspring of his imagination with such a ludicrous cognomen in a great degree to cause its abortion. The subject was refered to a select committee consisting of Gen. Charles F. Mercer; Mr. Sprague, the writer of this essay, and four others. A bill was reported in its favor, and your humble servant was selected as the unworthy champion to defend it from the numerous and powerful attacks which it would have been sure to encounter. He had not the opportunity, however, of enjoying that honor, as the bill was placed so low on the docket it was never reached. But he feels a pleasing assurance that such a subject ought not, and will not be consigned to oblivion or neglect, and from the few hasty notes, prepared on that occasion, he now humbly hopes to revive in the public mind those warm sympathies and lively interest in its favor which will ensure it a due consideration by that tribunal to which it must be indebted for its final success. This was not the first time, this subject had been before congress. The writer had the pleasure, more than once, of recording his vote in favor of the principle, and a compendious history of their proceedings will show that they sanctioned it with great unanimity, by making the necessary appropriations for defraying the expenses which they authorized for calculating a first meridian, as one of the first fruits of such an institution. In introducing the measure, we trusted that the recommendation of the president was well fortified by the liberal views of an enlightened public, enforced by a due sense of its sovereignty and national character. The writer trusts he always has been, and always will be found among the foremost of those who are zealous in promoting the honest fame of his country, in securing to her a rank among the nations of the earth, as a liberal patron of the arts and sciences. He trusts we are all equally covetous of glory; that which is to be acquired by the ull developement and expansion of our faculties, and the superior lustre by which they will hold up our country to the admiration of the world ; and that we are willing to afford the moderate means to effect that objec and t[illegible]t proud eminence which is yet unoccupied [illegible] field of greatness.

G[illegible]gton himself intended the capitol shou[illegible] meridian for the United States, by cau[illegible]phical position and its latitude to be asce[illegible]ndrew Ellicott, and recorded in the original pla[illegible]e city. As long ago as 1809, a memoria was presented to congress by William Lambert on the subject of a first meridian. It was refered to a select committee, of which Timothy Pitkin was chairman. On the 28th of March, 1810, a report was made, that it was expedient to make provision by law, authorizing the President to carry the prayer of the memorialist into effect, and to procure the necessary astronomical instruments. At the next session, the subject was again refered to a select committee, who were afterwards discharged from the further consideration of it, and it was referd to the then secretary of state, Mr. Monroe. In July, 1812, Mr. Monroe made a long report to the house in which he states, that "admitting the propriety of establishing a first meridian, it follows that it ought to be done with the greatest mathematical, precision. It is known that the best mode of establishing the meridian of any place is, by observations made on the heavenly bodies, and that to produce the greatest accuracy in the result, such observations should be often repeated at suitable opportunities, through a series of years by means of the best instruments. For this purpose an observatory would be of essential utility. It is only at such an institution, to be founded by the public, that systematic observations can be made for any length of time, and that the public can be made secure of the result of the labors of scientific men. In favor of such an establishment it is sufficient to remark, that every nation which has established a first meridian has established an observatory."

On the 18th of December, 1812, the foregoing letter and report were refered to a select committee, of which the late Dr. Samuel L. Mitchell was chairman. The committee recommended the establishment of an observatory to be erected in the city of Washington, for the purpose of fixing a first meridian, as well as ascertaining a great number of astronomical facts and occurrencies through the vigilance of a competent astronomer. The report was not acted on that session. On the 2d of February, 1815, the original memorial, with the several reports, were refered to a select committee, of which Hugh Nelson was chairman, and on the 18th, of the same month, the committee reported in favor of the measure. It passed the house of representatives, but not being in the form of a joint resolution, the president did not feel himself authorized to carry it into effect. On the 23d of November, 1818, the memorial was again introduced, a favorable report was made on the 24th of July, and adopted by the house, but not by the Senate. On the 20th of January, 1820, the memorial was refered to the committee of the judiciary, of which Mr. John Sergeant, was chairman. It passed both houses on the 2d of March, [illegible], and was approved. Mr. Lambert was employed by the president to carry the wishes of congress into effect, and in June, 1821, he commenced a series of observations with a transit instrument, to ascertain the latitude of the capitol, which he found to be 38° 53′ 17″. He also endeavored to find the longitude by the transits of the moon over the meridian, a method in his opinion* superior to all others, on account of the number of observations, and the accuracy with which they may be made. The mean result of all his observations gave the longitude of the capital 76° 55′ 30″ from Greenwich. In the year following, in the general appropriation bill, the sum of $2000 was allowed for Lambert, and $1700 to his assistants, as compensation for their services. Thus it appears that congress has conducted this business by regular steps, to within one of full maturity, and it awaits too long, that one to ensure its final completion. Is all this labor in vain? Is all this money to be thrown away? If it be asserted that the principal object was to obtain a first meridian, that is hardly secured. We cannot rely safely upon occasional calculations till corrected by future ones prepared in an observatory by a skilful astronomer. The latitude may be found from the meridian altitude of the sun, or a known fixed star, from two altitudes of the sun and the time between, and other methods of easy computation. But the longitude cannot be so easily found. From Philip the III. of Spain, down to George the IV. of Great Britain, rewards have been offered for its discovery at sea. In the reign of Charles the II., 1675, Mr. Flamstead was appointed astronomer royal, and an observatory was erected for him at Greenwich. The instructions to him and his successors were, that they should apply themselves with the utmost care and diligence to rectify the tables of the motions of the heavens, and the places of the fixed stars, in order to find out the much desired longitude at sea, for the perfecting the art of navigation. Here the government considers it a part of its duty, in advancing the trade of its people, to erect an observatory and place it under a proper officer, with a view to promote the art of navigation. Surely then this government, to which is emphatically entrusted the regulation of its commerce, cannot be backward in adopting these means which the most commercial nation has thought expedient to promote a primary interest. We should have more pride than to reap the fruits of her labors and expenditures, and to continue to depend on her for a first meridian to take our departure at sea. In 1774 an act of parliament was passed, offering separate rewards to any person who should find the longitude, by either a lunar method, or by a watch-keeping true time, within certain limits, or by any other method. Five thousands pounds were proposed as the reward for the time keeper, if it determine the longitude to 60 geographical miles, and two thousand if it determined it to 30 miles, and Mr. Harrison had the good fortune to obtain this bounty of his government for his time keeper. In addition to these sums, and others given to her enterprising navigators for their discoveries of a north west passage, much has been expended in erecting observatories in Great Britain, and Ireland. A nation that shows such liberal views, and does so much for the cause of science, deserve, to prosper. Although an observatory may be considered a novelty here, nothing is more common in Europe, there being no less than 140. To commerce, they are considered as regular an auxiliary as a light house, to the court an ornament, and to science a hand maid. There is a celebrated one at Benares, the oracle of Hindoo learning. Shall we be out done by demi-barbarians? The very monuments of antiqiuty seem to reproach us, with a sepulchral voice. The temple of Belus was only a great observatory, where the Chaldeans cultivated their favorite study, and the pyramids of Egypt were probably converted to the same use.—Their four fronts exactly faced the four cardinal points. They possessed unshaken solidity, a serene sky, and flat summits. Why should we, who have laid the world under contribution for materials of choice selection in the construction of our political and civil fabrics, be insensible to the most tempting prize which philosophy holds out? The first observatory of modern times was built by the king of Denmark for Tycho Brache at Uraniburg, opposite Copenhagen. The establishment, with its numerous instruments cost 200,000 crowns. Other nations followed the same example. In [illegible], the royal observatory at Paris was completed, and every state in Europe has one or more of these noble appendages of sovereignty. Great improvements are constantly making in the telescope by suggestions furnished at these establishments. The inconvenience arising from the different refrangibility of the rays of light are corrected by Dolland by his acromatic telescope, which magnifies at a power of 500 in the extent of five feet. Mr. Tully, of Islington, has still further improved the acromatic telescope and has constructed one twelve feet in length that magnifies 800 times with intense lustre. But Stayel, of Baysle, has lately constructed one 64 feet long, with which it is said he can discover animated beings in the moon, with roads, canals and temples. Schroeter the great astronomer, often speaks of the arts, civilization and industry of the inhabitants of the moon. He thinks he can observe a great city and extensive canals. But cutting short these "lunar observations," when we take into consideration the rude and imperfect instruments which were employed before the discovery of the telescope; when we consider the flood of light which burst from above through that instrument forming a halo around the head of Gallileo as he first pointed it to the heavens; when we consider the gradual improvements which it is undergoing as they are suggested by the experience of those astronomers, who, maintained by public munificence, and freed from all earthly cares are wrapt in those heavenly studies, to what an amazing pitch of perfection may they not be carried? what part of God's works may they not unfold tous? What portion of heaven may they not make us acquainted with! They in a measure draw God near to us and bring to our admiring eyes his wondrous works.

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* A more certain method of attaining the longitude, is that used by Captain Parry in Barrows strait. By the several methods of occultations, eclipses of Jupiter's satellites, the moon's transit and by lunar distances. The chronometrical longitude being taken into the account. Also by observing transits of the several small stars given in the Astronomich Nachrichtien for comparison with the moon in right ascention for the purpose of obtaining the absolute longitude.—Parry's Voy. p. 57.

Sir. Godfrey Kneller used to say that the employment of the pencil was the prayer of the painter. The use of the telescope must be the genuine worship of the astronomer. When Hershell from his observatory first levelled his great tube for the upper spheres; when he penetrated beyond the solar system, and other endless systems opened to his view, when through those vast bright openings in the southern hemisphere he seemed to look through the real portals of heaven upon the everlasting throne of God, what a thrill of divine rapture must have shook his frame, what a glow ef enthusiasm must have caught up his soul and transported it into the very presence of the Almighty! When we compare his situation at that moment with the miserable devotee grovelling in the dust, or bending before some rude idol, muttering incantations, or listening to the frantic ravings of a maniac and taking it for inspiration, I want no prouder triumph for science. The one but little removed from the brute, the other illuminated by an effulgence from the diety, until it becomes a mass of glory nearly homogenious and identified with it. Well may he exclaim,

These are thy glorious works,
Almighty! this thy wondrous fam[illegible]
Thyself—How wondrous then!

It has been a mark of wisdom in all great governments to encourage learning. From Augustus and the Antonines to George the IV. learned men have been considered the brightest ornaments of a court. In our own, we have enough of one class. Men whose observations are confined to earthly motion, whose calculations are directed to the right ascensions and declination of political luminaries and who understand the signs of the times better than those of the zodiac, many of whom partake of the rays of power, by revolving around it as satellites. I would not give a Gallileo, a Newton, a Hershell, or a Ritterhouse, for a host of such. We have done enough for war, let us do something for peace. Let us adorn her reign by trophies snatched from the stores of heaven. We are expending millions for fortifications, and act as though our hand was against every man's, and every man's hand against us, but not one cent to fortify our minds.

Let us defend our government from intellectual attacks, to which alone we are exposed; from the paper bullets of those who have expended so much in the cause of science, on which we have trespassed so long without contributing our quota. The heavens open an endless field of discovery. What administration would not be gratified by the discovery of a new world under its auspices? What president would not consider the measure of his fame and that of his country filled by such a discovery, and his immortality ensured by giving it his name. The Georgian has consecrated a royal name to future ages, and sheds a lustre on it as lasting as its own. There are important changes on the heavenly bodies that must and ought to interest us. Many stars have been known to disappear entirely.* What becomes of them? The moon is said to approach nearer the earth. Some stars diminish to a 3d and 4th magnitude and revive again. Solar spots are observed, having a motion that carries them around the suns disk and continue only 17 days. A more thorough knowledge of all these phenomina would be gratifying to a laudable curiosity, and advance a noble science. From an observatory, we may have daily news from heaven. If it merely quenched our thirst for earthly views, by showing their relative insignificance, it would prove a benefit. Superstition and fear, which overshadow barbarous nations, vanish before the light of science. An eclipse has deprived whole nations of their reason, and before learned men were found to calculate them, how many generals have been defeated by having their armies thrown into consternation at such an occurrence. Perseus lost his crown from that circumstance, while the troops of Emilius were kept in good spirits by the explanation of Gallus.* Columbus saved his life by fortelling an eclipse to the savages of Jamaica. The appearance of a [illegible], even now, is awful to a civilized nation; because [illegible] orbits are not clearly ascertained, nor their periodi[illegible]pearances correctly calculated. The unlette[illegible]s are thrown into the greatest terror, while

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*The planet Hershell was seen in 1755 by Mayer and thought by him to be a fixed star. He placed it accordingly on his catalogue of fixed stars, making it the 964th. Bode, of Berlin, in 1781 discovered that this star was missing. Subsequent calculation of the motions of this planet Hershell shewed that the same star that Mayer placed in his catalogue as the 964th star.—Jefferson's Correspondence, Vol. 1. p. 329.

> "The Godlike few, whom philosophy exalts
> The welcome stranger hail."

Much remains to be discovered, to aid in explaining the eccentricity of their orbits and the regularity of their appearance. The comet of 1824 excited the attention of observers. On the 23d of January, its velocity was increased to 2′ 36″, a day, its motion being twice as great as when at its perihelion. Its nucleus became larger and its tail increased as it receded from the sun, an anomaly that requires explanation. The earth travels at the rate of one and a half millions of miles a day in its annual course, and its mean daily motion is 59′ 8.″ But the daily motion of the comet was, January 13th, 1824, (at Inchbonny), nearly double that of the earth around the sun. The comet of 1825 was equally interesting, but its history is lost, because it was visible to us only, and not to Europe. What can interest us more nearly than the progress of such bodies, passing, as we are assured, through the very plane of the earth's orbit, and darting through the regions of space until they reach so far north as to be within the perpetual arc of apparition, and never set. We were lately much excited, and many old women and children terribly frightened at the threatened visitation of the one that was calculated for the 27th of November last,* that was to pass near enough to bring us within its vapour and suffocate us.

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*" Romanis militibus Galli sapientia, prope divina videri."—Liv.

But the calculator missed a figure. It is called Belias comet, but we may be willing to yield the right of ownership to any other person who will reduce his claim into possession by seizing him by the tail,† should he dare approach within our chartered limits. Had we possessed the opportunity of tracing his track from an observatory during his former appearance and learning his elements, we might have detected such a monstrous error, and quieted the apprehensions of the public, by convincing it they are as harmless as other bodies.

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* Our good people were in much the same state that Captain Lemuel Gulliver found the citizens of Laputa. "These people," says he, "are under continual inquietudes, never enjoying a moment's peace of mind. Their apprehensions arise from several changes they dread in the heavenly bodies. That the earth very narrowly escaped a brush from the tail of a comet which would infallibly have reduced it to ashes; and that the next, which they calculate for one and thirty years hence will infallibly destroy us. For if in his perihelion he should approach within a certain degree of the sun as they have reason to dread, they will receive a degree of heat 10,000 times better than red hot iron, and in his return from the sun, carry a blazing tail ten hundred thousand and 14 miles long, through which, if the earth should pass at the distance of 10,000 miles, it must be set on fire. They are so perpetually alarmed with these and the like impending dangers, that they can neither sleep quietly in their beds nor have any relish for the common pleasures and amusements of life."—*Swift's works, Vol:* 3, p. 212.

† This would not be so difficult a task, as this comet is in reality no more than a sort of natural sky rocket, its nucleus being less than 200 miles in diameter.

To the ornamental part of learning, and as a means of enabling us to contribute much towards its advancement, the observatory will add the practical and useful, in the construction of nautical almanacs, and [illegible] render us in that respect independent of foreigners. There is great complaint of the numerous errors [illegible] the late London nautical almanacs. When we have a responsible astronomer, in charge of that institution, acting under the excitement of emulation, we may expect as much precision as skill and care can bestow. After the sublime views which grow out of this subject, we cannot sink into the petty calculation of cost.

> "Look up to nature through the range of planets,
> Suns and adamantine spheres, in harmonious order wheeling
> Through the void immense."

And while meditating upon the grandeur of the scene let not your holy reverie be disturbed by earthly dross, but as you muse the praise of him who created and rules the whole, let this humble monument arise from your silent and spontaneous devotion to learning and patriotism.